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WE CLAIM:

1. A method for modulating the levels of a metabolic or biosynthetic product in a plant, including introducing a product into a plant, said method comprising introducing a genetic sequence encoding the product or a precursor to said product, or encoding an enzyme for the biosynthesis or metabolism of the product or a precursor of said product or a genetic sequence which alters the level of expression of a gene encoding a product or an enzyme capable of acting on the product, into a cell or group of cells of said plant, wherein the plant is a member of the family *Saccharum* genus, and wherein said metabolic or biosynthetic product comprises a polyhydroxyalanoate, a mixture of polyhydroxyalanoates or a precursor thereof.
2. The method of Claim 1 herein the member of the *Saccharum* genus is sugarcane.
3. The method of Claim 1 wherein the polyhydroxyalkanoate is polyhydroxybutyrate.
4. The method of Claim 1 wherein the genetic sequence comprises one or more genetic sequences selected from the list comprising:-
 - (i) a nucleotide sequence encoding a phaA or homolog thereof;
 - (ii) a nucleotide sequence encoding phaB or homolog thereof;
 - (iii) a nucleotide sequence encoding phaC or homolog thereof;
 - (iv) a nucleotide sequence encoding phaC1 or homolog thereof;
 - (v) a nucleotide sequence encoding phaG or homolog thereof;
 - (vi) a nucleotide sequence encoding phaJ or homolog thereof

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- (vii) SEQ ID NO:1 or SEQ ID NO:3 or SEQ ID NO:10 or SEQ ID NO:12 or a nucleotide sequence having at least 60% identity thereto after optimal alignment, or capable of hybridizing to SEQ ID NO:1 or SEQ ID NO:3 or SEQ ID NO:10 or SEQ ID NO:12 or a complementary form thereof under low stringency conditions;
- (viii) SEQ ID NO:4 or SEQ ID NO:6 or SEQ ID NO:13 or SEQ ID NO:15 or a nucleotide sequence having at least 60% identity thereto after optimal alignment, or capable of hybridizing to SEQ ID NO:4 or SEQ ID NO:6 or SEQ ID NO:13 or SEQ ID NO:15 or a complementary form thereof under low stringency conditions;
- (ix) SEQ ID NO:7 or SEQ ID NO:9 or SEQ ID NO:16 or SEQ ID NO:18 or a nucleotide sequence having at least 60% identity thereto after optimal alignment, or capable of hybridizing to SEQ ID NO:7 or SEQ ID NO:9 or SEQ ID NO:16 or SEQ ID NO:18 or a complementary form thereof under low stringency conditions;
- (x) SEQ ID NO:19 or SEQ ID NO:21 or SEQ ID NO:22 or SEQ ID NO:24 or SEQ ID NO:25 or SEQ ID NO:27 or a nucleotide sequence having at least 60% identity thereto after optimal alignment, or capable of hybridizing to SEQ ID NO:19 or SEQ ID NO:21 or SEQ ID NO:22 or SEQ ID NO:24 or SEQ ID NO:25 or SEQ ID NO:27 or a complementary form thereof under low stringency conditions;
- (xi) SEQ ID NO:28 or SEQ ID NO:30 or a nucleotide sequence having at least 60% identity thereto after optimal alignment, or capable of hybridizing to SEQ ID NO:28 or SEQ ID NO:30 or a complementary form thereof under low stringency conditions;
- (xii) SEQ ID NO:31 or SEQ ID NO:33 or a nucleotide sequence having at least

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60% identity thereto after optimal alignment, or capable of hybridizing to SEQ ID NO:31 or SEQ ID NO:33 or a complementary form thereof under low stringency conditions.

5. A genetically modified *Saccharum* sp. cell comprising a genetic sequence encoding a metabolic or biosynthetic product or a precursor to said product, or encoding an enzyme for the biosynthesis or metabolism of the product or a precursor of said product or a genetic sequence which alters the level of expression of a gene encoding a product or an enzyme capable of acting on the product wherein said metabolic or biosynthetic product comprises a polyhydroxyalanoate, a mixture of polyhydroxyalanoates or a precursor thereof.
6. The *Saccharum* sp. cell of Claim 5, wherein said *Saccharum* sp. is sugarcane.
7. The *Saccharum* sp. cell of Claim 5 or 6, wherein the polyhydroxyalkanoate is polyhydroxybutyrate.
8. The genetically modified *Saccharum* sp. cell of any one of Claims 5 to 7, wherein said genetically modified cell comprises one or more of the genetic sequences recited in Claim 4.
9. A genetically modified *Saccharum* sp. plant comprising one or more cells of any one of claims 5 to 8.
10. Seeds or other reproductive material or propagation material from the plant of Claim 9.
11. A polyhydroxyalkanoate polymer or mixture of polyalkanoate polymers produced according to the method of any one of Claims 1 to 4.

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12. A plant based bioreactor system used for the production of a metabolic or biosynthetic product, said bioreactor comprising one or more genetically modified cells of any one of Claims 5 to 8 or one or more *Saccharum* sp. plants of Claim 9.